

It is claimed:

1. A computer-implemented method for a telephony server to provide services based upon a call from a user, comprising the steps of:

5                   receiving an incoming call from a user who is using a telephone communication device;

                  retrieving over a computer network a voice application from a remote web site;

10                   using the retrieved voice application to have a speech-based conversation over the telephone communication device with the user to obtain service data from the user;

                  using the retrieved voice application to perform the requested service based upon the user-provided service data; and

15                   (after performing the requested service, the voice application and the user service data are removed from the telephony server. )

2. The method of claim 1 wherein the user uses a wireless communication device.

3. The method of claim 1 wherein the voice application is a voice markup language application.

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4. The method of claim 2 wherein the voice application is a Voice Extensible Markup Language application.

5. The method of claim 1 further comprising the step of:

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transmitting a voice application request to the remote web site over a computer network, wherein the web site selects a voice markup language program based upon the request and provides the selected voice markup language program to the telephony server.

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6. The method of claim 5 wherein the provided voice markup language program interacts by a speech-based conversation with the user.

7. The method of claim 6 wherein the web site includes a database that stores data about voice applications in accordance with a predetermined voice application taxonomy,

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wherein the web site retrieves voice application data based upon the request from the telephony server, wherein the retrieved voice application data is used to provide the voice markup language program to the telephony server.

8. The method of claim 7 wherein the request is based at least in part upon the voice application taxonomy.

9. The method of claim 8 wherein the voice application taxonomy includes

5 classifications selected from the group consisting of required speech engine resources, required telephony resources, required telephony markup language, required application server environment, and combinations thereof.

10. The method of claim 9 wherein a plurality of audio advertisements is accessible by  
10 the web site, wherein at least one of the audio advertisements is retrieved based upon predetermined selection rules, wherein the retrieved audio advertisement is provided to the telephony server and played to the user.

11. The method of claim 10 wherein the request includes a user profile, wherein at least  
15 one of the audio advertisements that substantially matches the user profile is played to the user.

12. The method of claim 11 wherein the selection rules includes balanced ad usage rules that are used to determine which stored audio advertisement to retrieve.

20 13. The method of claim 1 wherein the telephony server routes the call from the user over a Voice Over IP (VoIP) connection.

14. The method of claim 1 wherein the telephony server routes the call from the user over a Voice on the Net (VON) connection.

15. The method of claim 1 wherein the telephony server routes the call from the user  
5 over a public switched telephone network.

16. The method of claim 1 wherein the computer network is a global communication network.

10 17. The method of claim 16 wherein the computer network is an Internet network.

18. The method of claim 1 further comprising the step of:

after performing the requested service, transferring at least a portion of the  
user service data to a remote computer on the computer network and removing the voice  
application and the user service data from the telephony server.

19. The method of claim 1 further comprising the step of:

selecting at least one speech engine to operate with the retrieved voice  
application.

20. The method of claim 1 further comprising the step of:

selecting at least one speech recognition engine to operate with the  
retrieved voice application.

21. The method of claim 20 further comprising the step of:

selecting at least one text-to-speech engine to operate with the retrieved voice application.

22. The method of claim 1 further comprising the step of:

detecting an abnormal condition during execution of the voice application and providing notification of the detected abnormal condition.

23. The method of claim 1 wherein the telephony server provides additional functions for operation of the voice application on the telephony server, wherein the additional functions are selected from the group consisting of timer means, registration means, logger means, health monitor means, alarm means, alert means, and combinations thereof.

24. The method of claim 1 further comprising the step of:

determining which voice application to retrieve over the computer network based upon dialed number of the incoming call.

25. The method of claim 24 wherein a database stores an association between phone numbers and computer network identifiers, said method further comprising the steps of:

determining the dialed number of the incoming call;

retrieving from the database a computer network identifier that is associated with the determined dialed number; and

retrieving over the computer network the voice application that is identified by the computer network identifier.

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26. A computer-implemented telephony server that provides services based upon a call from a user, comprising:

at least one telephone network interface card that receives an incoming  
5 call from a user who is using a telephone communication device;

a uniform resource locator (URL) administrator that retrieves over a  
computer network a voice application from a remote web site;

a voice markup language engine that uses the retrieved voice application  
to have a speech-based conversation over the telephone communication device with the  
10 user to obtain service data from the user;

wherein the voice markup language engine uses the retrieved voice  
application to perform the requested service based upon the user-provided service data;  
and

wherein the telephony server is substantially stateless with respect to the  
15 user call after the requested service is performed.

27. The telephony server of claim 26 wherein the user-provided service data generated  
based upon the call is removed from the telephony server so that the telephony server is  
substantially stateless with respect to the user call after the requested service is  
20 performed.

28. The telephony server of claim 26 wherein the voice application is removed from the telephony server so that the telephony server is substantially stateless with respect to the user call after the requested service is performed.

5 29. The telephony server of claim 26 wherein the user uses a wireless communication device.

30. The telephony server of claim 26 wherein the voice application is a voice markup language application.

10 31. The telephony server of claim 26 wherein the voice application is a Voice Extensible Markup Language application.

15 32. The telephony server of claim 26 wherein the voice markup language engine transmits a voice application request to the remote web site over a computer network, wherein the web site selects a voice markup language program based upon the request and provides the selected voice markup language program to the telephony server.

20 33. The telephony server of claim 32 wherein the provided voice markup language program interacts by a speech-based conversation with the user.

34. The telephony server of claim 33 wherein the web site includes a database that stores data about voice applications in accordance with a predetermined voice application



taxonomy, wherein the web site retrieves voice application data based upon the request from the telephony server, wherein the retrieved voice application data is used to provide the voice markup language program to the telephony server.

5 35. The telephony server of claim 34 wherein the request is based at least in part upon the voice application taxonomy.

36. The telephony server of claim 35 wherein the voice application taxonomy includes classifications selected from the group consisting of required speech engine resources,  
10 required telephony resources, required telephony markup language, required application server environment, and combinations thereof.

37. The telephony server of claim 36 wherein a plurality of audio advertisements is accessible by the web site, wherein at least one of the audio advertisements is retrieved  
15 based upon predetermined selection rules, wherein the retrieved audio advertisement is provided to the telephony server and played to the user.

38. The telephony server of claim 37 wherein the request includes a user profile, wherein at least one of the audio advertisements that substantially matches the user profile is  
20 played to the user.

39. The telephony server of claim 38 wherein the selection rules includes balanced ad usage rules that are used to determine which stored audio advertisement to retrieve.

40. The telephony server of claim 26 wherein the telephony server routes the call from the user over a Voice Over IP (VoIP) connection.

5 41. The telephony server of claim 26 wherein the telephony server routes the call from the user over a Voice on the Net (VON) connection.

42. The telephony server of claim 26 wherein the telephony server routes the call from the user over a public switched telephone network.

10 43. The telephony server of claim 26 wherein the computer network is a global communication network.

15 44. The telephony server of claim 43 wherein the computer network is an Internet network.

45. The telephony server of claim 26 further comprising:

a plurality of speech engines, wherein at least one of the speech engines is selected to operate with the retrieved voice application.

46. The telephony server of claim 26 further comprising:

a plurality of speech recognition engines, wherein at least one of the speech recognition engines is selected to operate with the retrieved voice application.

47. The telephony server of claim 46 further comprising:

a plurality of text-to-speech engines, wherein at least one of the text-to-speech engines is selected to operate with the retrieved voice application.

48. The telephony server of claim 26 wherein the URL administrator determines which voice application to retrieve over the computer network based upon dialed number of the incoming call.

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